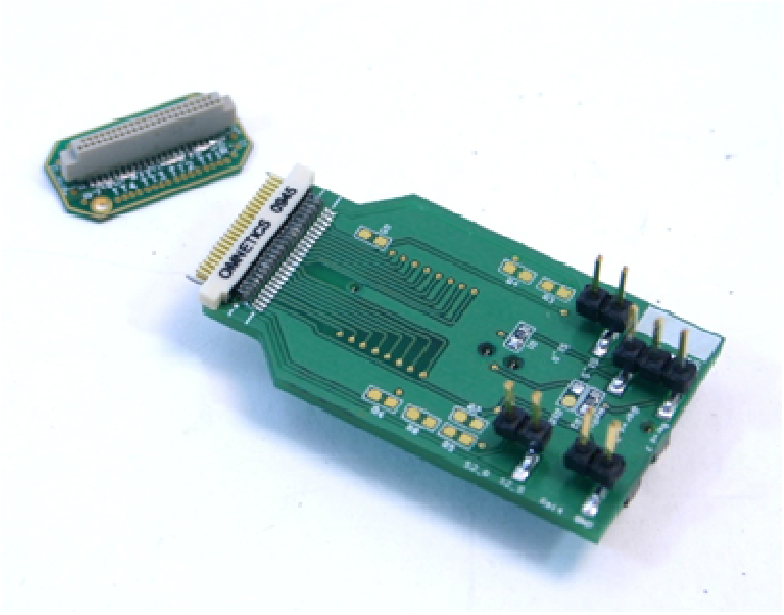
Neuralynx
High Density Electrophysiology Recording Systems



ADPT-NZ-EIB-36
ADPT-NZ-N2T-32
User Manual

Adapters for interfacing the NanoZ to Neuralynx EIBs and NeuroNexus probes.

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1 Document Overview

Thank you for purchasing the interface adaptor for the NanoZ. This adapter comes in two formats, one for 32 signals, ADPT-NZ-N2T-32, and another for 36 signals, ADPT-NZ-EIB-36. This user manual will guide you through the setup and use of your adapter.

2 ADPT-NZ-EIB-36/N2T-32 Overview

The adapters, available signals and compatible interfaces are tabulated in the table 1.

Adapter	Signals		
	Data	Reference	Stim Channels
ADPT-NZ-EIB-36	32	4	2
ADPT-NZ-N2T-32	32	2	0

Table 1: ADPT-NZ-EIB-xx Compatibility

The ADPT-NZ- N2T -32 and the ADPT-NZ-EIB-36 interface with the NanoZ© distributed by Neuralynx Inc. The NanoZ allows impedance measurement and probe reconditioning. Please refer to the NanoZ documentation for instructions on using the NanoZ.

3 Glossary

EIB	*An Electrode Interface Board (EIB) is the interface between experiment electrodes in a microdrive and the appropriate headstage.*
ESD	*Electrostatic discharge.*
Header	*Vertical pins on board for accessing signals.*
N2T	*Abbreviation for NeuroNexus*
NanoZ	*Probe impedance measurement and plating device.*
NeuroNexus	*Provider of neurological probes*
NZRef	*Return path for NZ*
Omnetics	*Provider of custom connectors*
Stim Ret	*Non-buffered stimulus return*
Stim Src	*Non-buffered stimulus source*

4 Setup and Configuration.

4.1 Hardware Setup

There is no setup required for either adapter as shipped from Neuralynx. Although the adapters are not ESD sensitive, it is good practice to ground yourself before handling any electronic equipment.

4.2 Software and Mapping

The NanoZ channels are mapped to the electrodes in two stages. The first identifies the adapter and the other identifies the EIB or probe. This allows flexibility for multiple adapters and multiple EIBs or probes without defining a mapping for every possible combination.

The electrode.ini file defines the adapter and probe mappings. If you modify or update definitions, follow these steps to replace the old file with the new one.

4.2.1 XP

Locate the electrode.ini file from the setup CD or download the latest version fromwww.neuralynx.com.

Copy it to óC:\Documents and Settings\USERNAME\Local Settings\Application Data\nanoZô. Where USERNAME is your windows login account. If you do not see the nanoZ folder, look in another óC:\Documents and Settingsô folder, see figure below.

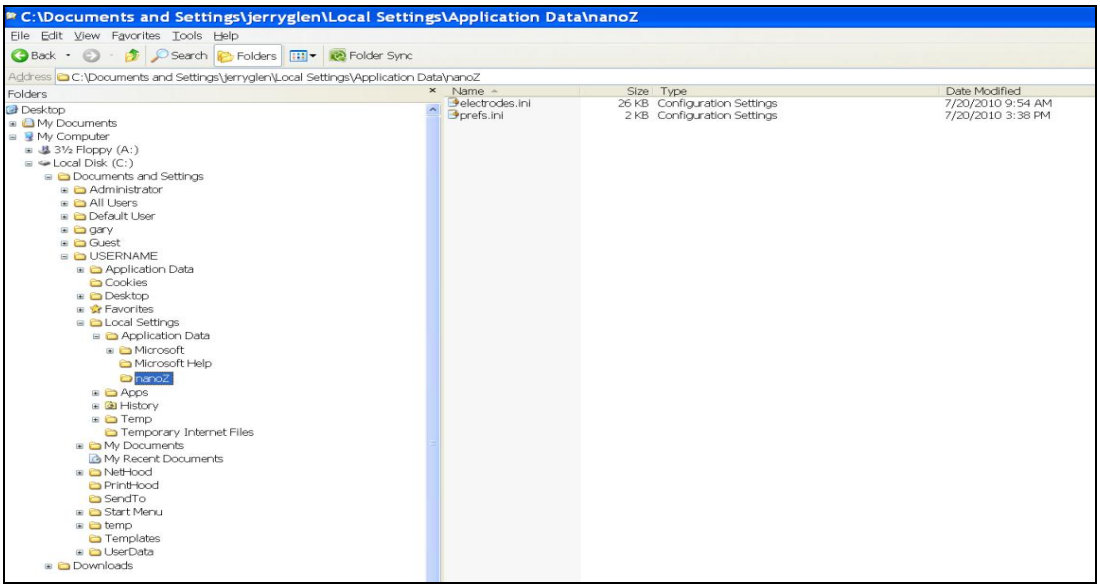

Figure 1: Location for electrode.ini

4.2.2 Windows 7

Locate the electrode.ini file from the setup CD or download the latest version from www.neuralynx.com.

Copy it to C:\Users\admin\AppData\Local\nanoZ.

4.2.3 Reloading the Mapping file

Open the NanoZ program and reload the electrode.ini file by selecting File, Reload definitions.

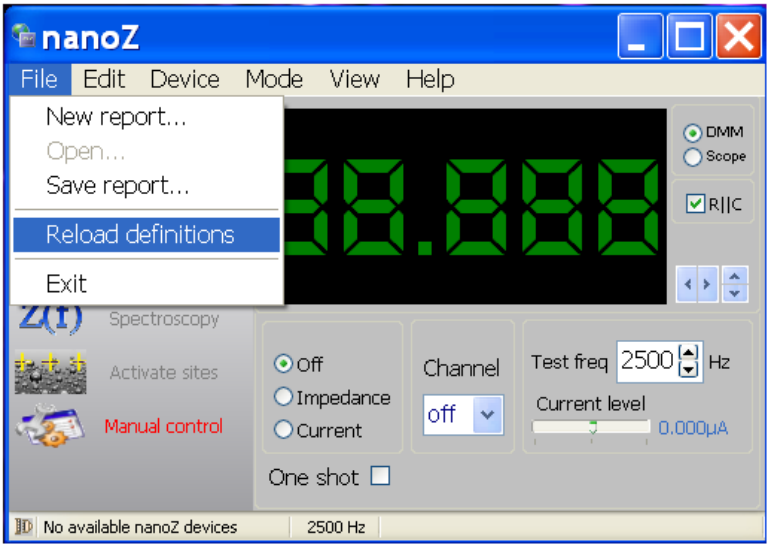

Figure 2: Reloading the Electrodes.ini File

In the upper left hand corner you will see two pull down windows. The top window identifies the adapter. Select ADPT-NZ-EIB-36.

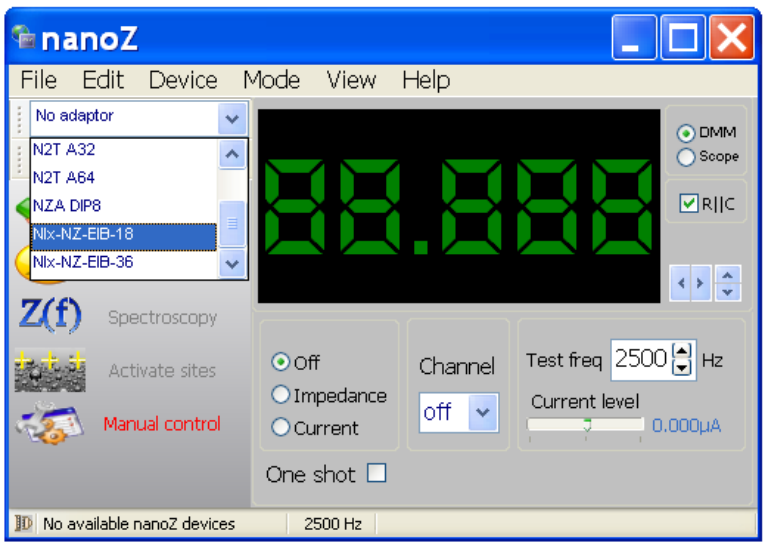

Figure 3: Adapter Mapping

The window below the adapter identifies the electrode or EIB. Select Probe Not Selected.

4.3 Header Connections

There are several signals available on either the ADPT-NZ-N2T-32 or ADPT-NZ-EIB-36 by means of standard 100mil pitch headers. They are summarized in the table below. See Figure below for the location of headers.

Signal	*NZ Channel*	*Pin*
GND	n/a	J7-2
NZRef	R1	J4-1
Ref	63	J7-1
Reserved 2	R2	J4-2
Reserved 3	R3	J4-3
Stim 1 Ret	21	J6-2
Stim 1 Src	22	J6-1
Stim 2 Ret	13	J5-2
Stim 2 Src	14	J5-1

Table 2: Signal Access for ADPT-NZ-N2T-32 and ADPT-NZ-EIB-36

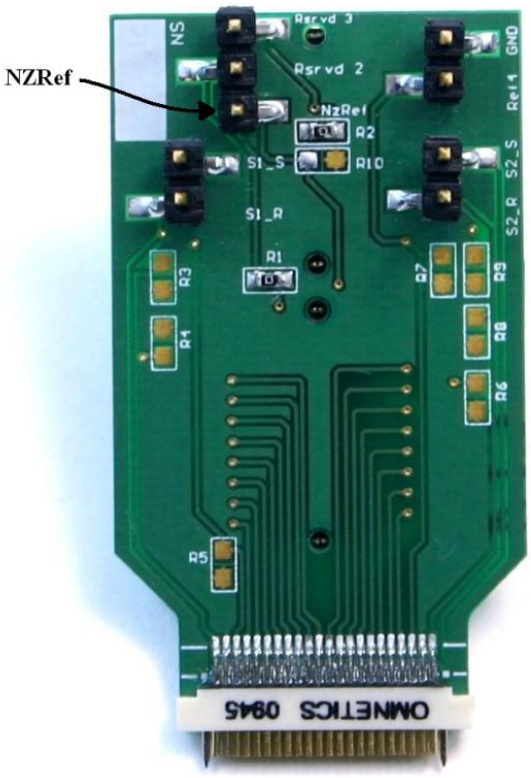

Figure 4: Adapter NZRef Position

4.3.1 NZ Reference and Reserved Channels, J4

J4 provides access to three NanoZ reference channels. A three pin connector with an alligator clip is provided with the NanoZ for this purpose.

R1 or NZRef is used as a return path for plating and impedance measurement. **As such it must be submersed in the plating solution, connected to the test material or connected to the animal,** see figure above.

Two additional references labeled Rsvrd2 and Rsvrd3 are for future use and are not used. The three pin to alligator clip ties NZRef, Rsvrd2 and Rsvrd3 together, and thus the connector has no specific orientation.

4.3.2 GND and Ref, J7

The ground which would be typically connected to a head screw is accessible on J7. Also available on J7 is the reference channel that would typically be an electrode located in the vicinity of the signal electrodes.

This header allows either individual access or the ability to tie GND and Ref together using a jumper.

4.3.3 Stimulus Lines, J5 and J6

Neuralynx provides two stimulus channels in its systems. Access to these signals is available via J5 and J6 on the ADPT-NZ-EIB-36. The ADPT-NZ-N2T-32 does not support stimulus channels. In this case the pins on J5 and J6 are shorted to ground via R8, R9, R3, and R4.

4.3.4 Configuration Resistors

Although not typically done, both the ADPT-NZ-N2T-32 and the ADPT-NZ-EIB-36 adapters allow the Ref and NZRef signals to be tied to ground by shorting R7. Please contact Neuralynx for assistance if you desire to do this. As shipped from the factory these signals are isolated from the GND defined on the EIB and NeuroNexus probes.

Shunt to tie to GND	Pad
Ref	R7
NZRef	R10

Table 3: Resistor Pad to Tie Signals to GND

4.3.5 nanoZ Channel Mapping

The NanoZ maps to the Neuralynx signals in the following order: A, B, references, Stim1, and Stim2. See table below.

nanoZ	Neuralynx		nanoZ	Neuralynx
1	A1		21	B5
2	A2		22	B6
3	A3		23	B7
4	A4		24	B8
5	A5		25	B9
6	A6		26	B10
7	A7		27	B11
8	A8		28	B12
9	A9		29	B13
10	A10		30	B14
11	A11		31	B15
12	A12		32	B16
13	A13		33	Ref 1
14	A14		34	Ref 2
15	A15		35	Ref 3
16	A16		36	Ref 4
17	B1		37	S1 Ret
18	B2		38	S1 Src
19	B3		39	S2 Ret
20	B4		40	S2 Src

Table 4: nanoZ to Neuralynx Channel Mapping

4.3.6 Pinouts

The figures below show the pinouts for the input connectors. Note that the stim lines are not used in the ADPT-NZ-N2T-32. The NanoZ channels are labeled as óChxxô. NZ I/F refers to the channels seen in the nanoZ software interface. If the nanoZ Software Development Kit, SDK, is used the channels are referenced using NZ Native since the adapter mapping is not available to the SDK.

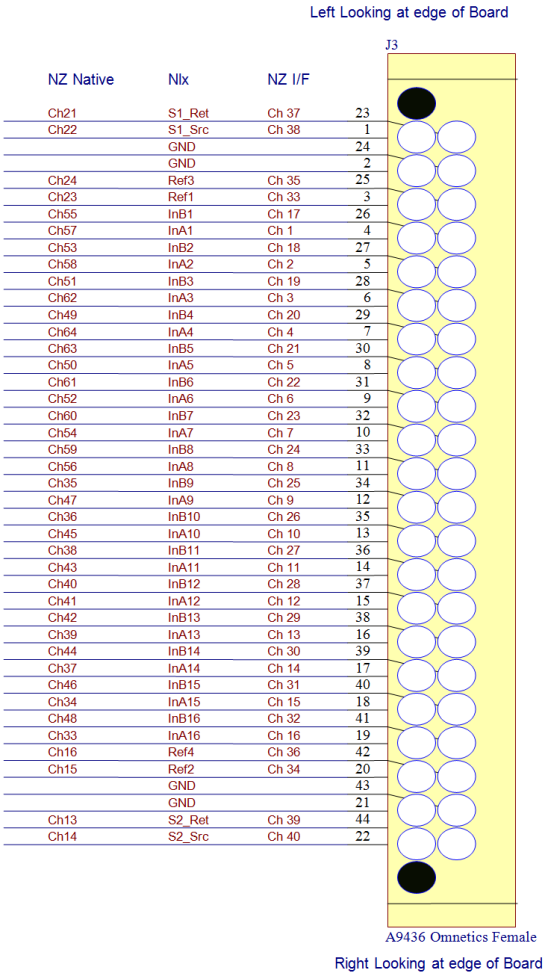

Figure 5: ADPT-NZ-EIB-36 J3

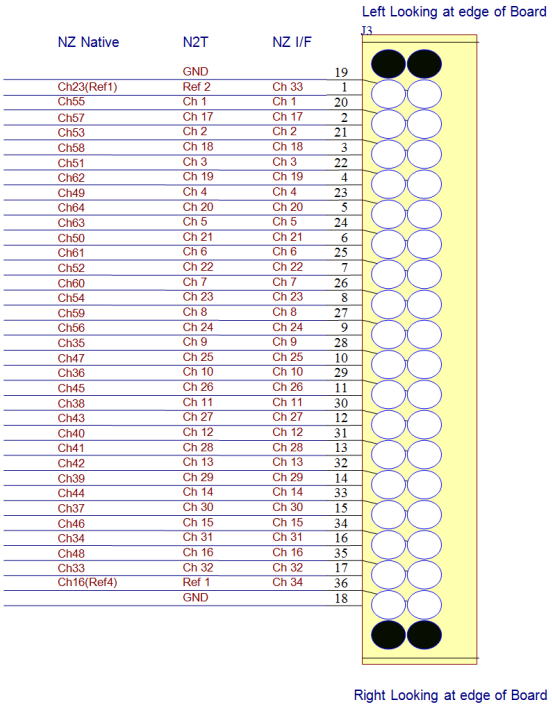

Figure 6: ADPT-NZ-N2T-32 J3

4.4 Removal

It is very important to take care when removing the adapter from the nanoZ. Do not pull on the header pins or connectors of the adapter to remove it. Gently rock the adapter from side to side using a pry tool, or your fingernails, until it is free from the nanoZ.

5 Appendix

5.1 Software and manual updates

Please visit our site periodically to check for software updates at www.neuralynx.com